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| Appellant: | Haverinen | Examiner: | Ajayi, J. |
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# APPEAL BRIEF

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Sir:

This Appeal Brief is submitted pursuant to 37 C.F.R. § 41.37 for the above-referenced patent application in response to the Notice of Appeal filed on April 27, 2009, and the Panel Decision from Pre-Appeal Brief Review to proceed to the Board of Patent Appeals and Interferences dated November 9, 2009.

Please charge deposit account 50-3581 (KOLS.047PA) in the amount of $540.00 for filing this brief in support of an appeal as set forth in 37 C.F.R. § 41.20(b)(2). If necessary, authority is given to charge/credit deposit account 50-3581 (KOLS.047PA) additional fees/overages in support of this filing.

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## I. REAL PARTY IN INTEREST

The real party in interest is the assignee, Nokia Corporation.

## II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals, interferences, or judicial proceedings that would have a bearing on the Board's decision in the instant appeal.

## III. STATUS OF CLAIMS

Claims 1, 2, 6-8, and 13-32 are pending, and claims 3-5 and 9-12 have been canceled. Claims 1, 2, 6-8, and 13-32 have been finally rejected by the Examiner's action dated December 30, 2008 (hereinafter "final Office Action"), from which Appellant appeals.

A copy of claims 1, 2, 6-8, and 13-32, which are the subject of this appeal, may be found in the Claims Appendix (section VIII) at pages 14-20.

## IV. STATUS OF AMENDMENTS

In accordance with the telephone message left by Examiner Ajayi on December 7, 2009, Appellant is of the understanding that the amendments presented in the Amendment & Response Under 37 C.F.R. § 1.116 filed on March 26, 2009, and subsequent to the final rejection dated December 30, 2008, were not entered.

The Advisory Action dated April 9, 2009, is silent with respect to the status of the amendments presented subsequent to the final rejection.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention provides for maintaining an address allocated for a particular terminal as a tunneling IP address when handover is carried out from a first access device to a second access device. The corresponding host (the end point of the tunnel that does not change) need not be updated owing to the change of the other end point in the tunnel. Higher layer signalling solutions are not required to support mobility, and no changes are required to be made in the tunnelling protocols, the implementation of the corresponding hosts in the tunnels, the terminals, or the standards between the terminal and the access devices. Since the end point of the tunnel can be locally changed, the delay caused by the signalling messages to be sent to the corresponding host, or received therefrom, can be avoided.

One embodiment of the present invention is directed to a method. *See, e.g.*, claim 1; Figs. 3 and 4; and the respective corresponding discussions at page 10, line 11, through page 11, line 5. The method includes allocating a tunneling IP address (*e.g.*, 303) for a tunnel to be formed for data transmission of a terminal connected to a first access device, to a corresponding host, to which tunneling IP address the tunnel is bound. The method further includes transferring at least the tunneling IP address from the first access device to a second access device (*e.g.*, 402) in response to detecting a need to change the connection of the terminal to be carried out by the second access device.

Another embodiment of the present invention is directed to an access device for a telecommunication network, wherein the access device is configured to provide a terminal with a connection. *See, e.g.*, claim 13; Figs. 2-4; and the respective corresponding discussions at page 5, line 2, through page 12, line 32. The access device (*e.g.*, AP, page 5, lines 32-36) is configured to allocate a tunnelling IP address for a tunnel to be formed for data transmission of the terminal (*e.g.*, 303), to which tunnelling IP address the tunnel is bound, and to form the tunnel between a corresponding host and an access device for data transmission of the terminal (*e.g.*, 304). The access device is further configured to send at least said tunnelling IP address to a second access device in response to detecting a need to change the connection of the terminal to be implemented by the second access device (*e.g.*, 402).

Another embodiment of the present invention is directed to an access device for a telecommunication network. *See, e.g.*, claim 16; Figs. 2 and 4; and the respective corresponding discussions at page 5, line 2 through page 9, line 23 and page 10, line 35 through page 12, line 32. The access device (*e.g.*, second access device) includes means for providing a terminal with a connection (*e.g.*, processor and memory, page 15, lines 25-30, tunneling protocols, routers, radio technologies, antenna) and means for forming a tunnel (*e.g.*, processor and memory, page 15, lines 25-30, tunneling protocols, routers, radio technologies, antenna) between a corresponding host and the access device for data transmission of the terminal. The access device is configured to receive at least a tunnelling IP address allocated for a tunnel for the data transmission of the terminal in response to detecting a need to change the connection of the terminal to be implemented by the access device (*e.g.*, 402). The access device is further configured to form a binding between the tunnelling IP address and the network interface (*e.g.*, 403) and to update the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system (*e.g.*, 404).

Another embodiment of the present invention is directed to a communications apparatus. *See, e.g.*, claim 19; Figs. 2 and 4; and the respective corresponding discussions at page 5, line 2 through page 9, line 23 and page 10, line 35 through page 12, line 32. The apparatus (*e.g.*, second access device) comprises a processor and a memory (*e.g.*, page 15, lines 25-30) and is configured to form a tunnel between a corresponding host and the apparatus for data transmission of a terminal (*e.g.*, AP, page 5, lines 32-36). The apparatus is also configured to receive at least a tunnelling IP address allocated for a tunnel for the data transmission of the terminal in response to detecting a need to change the connection of the terminal to be implemented by the apparatus (*e.g.*, 402). Further, the apparatus is configured to form a binding between the tunnelling IP address and the network interface (*e.g.*, 403) and to update the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system (*e.g.*, 404).

Another embodiment of the present invention is directed to a method. *See, e.g.*, claim 26; Fig. 4; and the corresponding discussion at page 10, line 35 through page 12, line 32. The method includes receiving at least a tunnelling IP address allocated for a tunnel

for data transmission of a terminal in response to detecting a need to change the connection of the terminal to be implemented by a second access device (*e.g.*, 402) and forming a binding between the tunnelling IP address and a network interface of the second access device (*e.g.*, 403). The method further includes updating the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system of the terminal (*e.g.*, 404).

As required by 37 C.F.R. § 41.37(c)(1)(v), a concise explanation of the subject matter defined in each of the independent claims involved in the appeal is provided herein. Appellant notes that representative subject matter is identified for each of these claims; however, the abundance of supporting subject matter in the application prohibits identifying all textual and diagrammatic references to each claimed recitation. Appellant thus submits that other application subject matter, which supports the claims but is not specifically identified above, may be found elsewhere in the application. Appellant further notes that this summary does not provide an exhaustive or exclusive view of the present subject matter, and Appellant refers to the appended claims and their legal equivalents for a complete statement of the invention.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1, 2, 8, 13, 15-17, 19, 20, 24-28, and 32 stand rejected under 35 U.S.C. § 102(e) over La Porta *et al.* (U.S. Patent No. 6,654,359) (hereinafter "La Porta").

B. Claims 6, 7, 14, 18, 21-23, and 29-31 stand rejected under 35 U.S.C. § 103(a) over La Porta in view of Johansson *et al.* (U.S. Publication No. 2002/0080752) (hereinafter "Johansson").

## VII. ARGUMENT

### A. The § 102(e) rejection is improper because the asserted teachings of La Porta fail to teach or suggest each of the claimed limitations.

La Porta, upon which both of the rejections are primarily based, does not teach or suggest at least, "transferring at least the tunneling IP address from the first access device to a second access device in response to detecting a need to change the connection of the terminal to be carried out by the second access device" (using the language of independent claim 1 for purposes of example). The claimed first access device is a device from which a terminal is being handed over, and the second access device is the device to which the terminal is being handed. Thus, the second access device replaces the first access device as one of the endpoints of the tunnel.

At page two of the final Office Action, the Examiner contends that the handoff path setup message being transmitted in case of handoff between base stations in a current domain (Col. 10, lines 46-63) corresponds to the claimed transfer of a tunneling IP address from a first access device to a second access device. However, La Porta explicitly describes at Col. 21, lines 45-47 (emphasis added), "The mobile device 114 then transmits the handoff path setup message over a first hop 450 to base station BS10 IntfB." It is further explained that IP packet routing information is updated on the basis of this message. Then the 'new base station' BS10 forwards the handoff path setup message to the 'old base station' BS9 (Fig. 15) or the handoff path setup message is transferred to the old base station BS9 via a router (Fig. 14). BS9 (from which the mobile device is being handed over) merely transmits an acknowledgement. Thus, La Porta does not teach that a tunneling address is transferred from an 'old/first access device' to a 'new/second access device', as claimed.

Instead, the relied upon base station of La Porta merely acts as a router, *see, e.g.*, Col. 21, lines 50-54, and Col. 22, lines 35-36. Therefore, Appellant maintains that the base stations of La Porta are not disclosed as having tunneling-related functionality, as claimed. The references to tunneling at columns seven and ten refer to a home agent HA that tunnels packets between a home domain and a foreign domain on the basis of mapping between a

local address (care-of address in the foreign domain) and home address in the home domain. *See, also*, Col. 5, lines 18-21. While the local IP address is used in the foreign domain to identify a mobile device and to route packets from the HA to the device, this is performed via normal internet protocol (IP) routing. As a skilled artisan would recognize, in Mobile IP the mere transmission of tunneled IP packets via a base station does not mean that the base station has some (IP protocol layer) tunneling capability. Contrary to the unsupported assertion in the second paragraph of the Advisory Action, La Porta's base stations do not have tunneling functionality related thereto.

Moreover, the citation in the Advisory Action to Col. 7, lines 39-47, that suggests that La Porta's home agent and care-of address are access devices does not correspond to the claimed limitations. La Porta's home agent, or the care-of address, is not an access device connected to a terminal, as claimed. In contrast, the cited portion is directed to updating a routing table to take into account the transit of a mobile station from an old base station to a new base station within a foreign domain. Notably, Col. 7, lines 32-34, teaches that the routing table is updated to direct a packet to the new base station; therefore, the same care-of address can be maintained when the mobile station moves between base stations of the same domain. Thus, these portions of La Porta are not applicable to the claim limitations directed to transferring a tunneling IP address between access devices.

In summary, La Porta does not teach the claimed transfer of a tunneling address, and the asserted access devices of La Porta do not correspond to the claimed first and second access devices. Since La Porta fails to teach transferring a tunneling IP address between first and second access devices, as claimed, La Porta also fails to correspond to the limitations directed to a second access device based on the tunneling IP address received from the first access device. Without correspondence to each of the claimed limitations, the § 102(e) rejection is improper.

In order to maintain at least the § 102(e) rejection of the independent claims, the Examiner must present correspondence to every element of the claims. The Federal Circuit recently held that "Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those

elements 'arranged as in the claim.'" (*Net Moneyin, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 2008 (Fed. Cir. 2008) quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). Therefore, all claim elements, and their limitations, must be found in the prior art reference to maintain the rejection based on 35 U.S.C. § 102. Appellant respectfully contends that La Porta does not teach every element of independent claims 1, 13, 16, 19, and 26 in the requisite detail, and therefore fails to anticipate claims 1, 2, 8, 13, 15-17, 19, 20, 24-28, and 32. Accordingly, Appellant requests that the rejection be reversed.

In addition, dependent claims 2, 8, 15, 17, 20, 24, 25, 27, 28 and 32 depend from independent claims 1, 13, 16, 19, and 26, respectively, and also stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by La Porta. While Appellant does not acquiesce with the particular rejections to these dependent claims, these rejections are also improper for the reasons discussed above in connection with the independent claims. These dependent claims include all of the limitations of their respective base claims and any intervening claims and recite additional features which further distinguish these claims from the cited reference. Therefore, the rejection of dependent claims 2, 8, 15, 17, 20, 24, 25, 27, 28 and 32 is improper, and Appellant requests that the rejection be reversed.

**B. The § 103(a) rejection is improper because the asserted combination of La Porta and Johansson does not teach or suggest each of the claimed limitations.**

The further relied-upon teachings of Johansson do not overcome the above-discussed deficiencies in the teachings of La Porta; therefore, the asserted combination of teachings does not correspond to each of the claimed limitations. For example, Johansson has not been shown to teach or suggest transferring a tunneling IP address from a first access device (from which the terminal is being handed over from) to a second access device, as claimed. Moreover, while Johansson includes claim terms such as Address Resolution Protocol and MAC address, the use of these terms in Johansson has not been shown to correspond to the claimed limitations. For example, no evidence has been provided that the MAC address 53 discussed in paragraph [0086] of Johansson would be the MAC address of a network interface of a second access device, as claimed. Since La

Porta fails to correspond to several of the claimed limitations and Johansson does not overcome this failure, the asserted combination of teachings fails to teach or suggest every element of dependent claims 6, 7, 14, 18, 21-23, and 29-31 in the requisite detail. Accordingly, Appellant requests that the rejection be reversed.

### C. The § 103(a) rejection is improper because no rationale for combining La Porta and Johansson has been articulated to support the rejection of dependent claims 7, 14, 18, 21, 23, 29, and 31.

In addition to having to show that the asserted combination of references teaches or suggests all of the claim limitations, the Examiner must articulate reasoning with some rational underpinning to support the asserted conclusion of obviousness. Appellant respectfully submits that this requirement has not been met.

With respect to the rejection of claims 7, 14, 18, 21, 23, 29, and 31, the Examiner fails to assert any rationale for combining the asserted teachings of Johansson with those of La Porta. The mere assertion that Johansson may teach the claimed limitations fails to provide the requisite support for a § 103(a) rejection. Since the asserted teachings have not been shown to correspond to each of the claimed limitations, and no rationale for combining certain of the teachings has been presented, a *prima facie* § 103(a) rejection has not been presented. Appellant accordingly requests that the rejection be withdrawn.

### D. Conclusion

In view of the above, Appellant respectfully submits that the invention(s) set forth in claims 1, 2, 6-8, and 13-32 is patentable over the asserted references and that the rejections of claims 1, 2, 6-8, and 13-32 should be reversed. Appellant respectfully requests reversal of the rejections as applied to the appealed claims and allowance of the application with respect to the appealed claims.

Authorization to charge the undersigned's deposit account is provided on the cover page of this brief.

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## VIII. CLAIMS APPENDIX

1. A method, comprising:

allocating a tunneling IP address for a tunnel to be formed for data transmission of a terminal connected to a first access device, to a corresponding host, to which tunneling IP address the tunnel is bound, and

transferring at least the tunneling IP address from the first access device to a second access device in response to detecting a need to change the connection of the terminal to be carried out by the second access device.

2. A method as claimed in claim 1, wherein tunnelling attributes, at least an IP address of the corresponding host and the tunnelling IP address allocated to the terminal in the first access device, are determined in an authentication server as a part of the authentication of the terminal before arranging the tunnel to the corresponding host,

the tunnelling attributes are transferred to the first access device in response to a successful authentication,

the IP address used in the data transmission of the terminal and the tunnelling IP address for the tunnel to be formed for the data transmission of the terminal that is used as an end point of the tunnel transferring data of the terminal are allocated in the first access device to the terminal,

the tunnel determined by the tunnelling attributes is bound in the first access device to the tunnelling IP address,

the tunnel, whose end points include the tunnelling IP address and the IP address of the corresponding host, is formed and thereafter the data transmission to the tunnelling IP address is transferred to a network interface of the first access device.

6. A method as claimed in claim 1, wherein the system supports an IPv6 protocol, whereby the information concerning a new binding is sent to at least one network node connected to the first access device and to the second access device to the routing table thereof using a Neighbour Discovery protocol.

7. A method as claimed in claim 1, wherein the system supports an IPv4 protocol, whereby the information concerning a new binding is sent to at least one network node connected to the first access device and to the second access device to an ARP table (Address Resolution Protocol) thereof using an ARP protocol.

8. A method as claimed in claim 1, wherein the first access device and the second access device are access points of a wireless local network connected to one another through a wired local network.

13. An access device for a telecommunication network, wherein the access device is configured to provide a terminal with a connection,

the access device is configured to allocate a tunnelling IP address for a tunnel to be formed for the data transmission of the terminal, to which tunnelling IP address the tunnel is bound

the access device is configured to form the tunnel between a corresponding host and an access device for data transmission of the terminal, and

the access device is configured to send at least said tunnelling IP address to a second access device in response to detecting a need to change the connection of the terminal to be implemented by the second access device.

14. An access device as claimed in claim 13, wherein said binding refers to the binding between a MAC address of the network interface and the tunnelling IP address.

15. An access device as claimed in claim 13, wherein the access device is configured to change the binding of the tunnelling IP address to temporarily denote the network interface of the second access device.

16. An access device for a telecommunication network comprising means for providing a terminal with a connection and means for forming a tunnel between a corresponding host and the access device for data transmission of the terminal, wherein the access device is configured to receive at least a tunnelling IP address allocated for a tunnel for the data transmission of the terminal in response to detecting a need to change the connection of the terminal to be implemented by the access device,

the access device is configured to form a binding between the tunnelling IP address and the network interface, and

the access device is configured to update the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system.

17. An access device as claimed in claim 16, wherein the access device is configured to transfer data after updating between the terminal and the corresponding host using the binding formed.

18. An access device as claimed in claim 16, wherein said binding refers to the binding between a MAC address of the network interface and the tunnelling IP address, whereby

the access device is configured to send the information concerning said binding using an ARP protocol or a Neighbour Discovery protocol.

19. A communications apparatus comprising a processor and memory, wherein the apparatus is configured to

form a tunnel between a corresponding host and the apparatus for data transmission of a terminal,

the apparatus is configured to receive at least a tunnelling IP address allocated for a tunnel for the data transmission of the terminal in response to detecting a need to change the connection of the terminal to be implemented by the apparatus,

the apparatus is configured to form a binding between the tunnelling IP address and the network interface, and

the apparatus is configured to update the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system.

20. An apparatus as claimed in claim 19, wherein the apparatus is configured to transfer data after updating between the terminal and the corresponding host using the binding formed.

21. An apparatus as claimed in claim 19, wherein said binding refers to the binding between a MAC address of the network interface and the tunnelling IP address, whereby the apparatus is configured to send the information concerning said binding using an ARP protocol or a Neighbour Discovery protocol.

22. An apparatus as claimed in claim 19, wherein the apparatus is configured to support an IPv6 protocol, and the apparatus is configured to send the information concerning the new binding to at least one network node by using a Neighbour Discovery protocol.

23. An apparatus as claimed in claim 19, wherein the apparatus is configured to support an IPv4 protocol, and the apparatus is configured to send the information concerning the new binding to at least one network node to an ARP table (Address Resolution Protocol) thereof by using an ARP protocol.

24. An apparatus as claimed in claim 19, wherein the apparatus is an access point of a wireless local network connected to another access point through a wired local network.

25. An apparatus as claimed in claim 19, wherein the network node is a router in a local network.

26. A method comprising:

receiving at least a tunnelling IP address allocated for a tunnel for data transmission of a terminal in response to detecting a need to change the connection of the terminal to be implemented by a second access device,

forming a binding between the tunnelling IP address and a network interface of the second access device, and

updating the information concerning the new binding between the network interface and the tunnelling IP address to at least one network node included in the system of the terminal.

27. A method as claimed in claim 26, the method further comprising:

transferring data between the terminal and the corresponding host using the binding configured to the second access device after updating.

28. A method as claimed in claim 26, wherein the network node is a router in a local network.

29. A method as claimed in claim 26, wherein said binding refers to binding between a MAC address of the network interface and the tunnelling IP address.

30. A method as claimed in claim 26, wherein the system supports an IPv6 protocol, whereby the information concerning the new binding is sent to at least one network node connected to the first access device and to the second access device to the routing table thereof using a Neighbour Discovery protocol.

31. A method as claimed in claim 26, wherein the system supports an IPv4protocol, whereby the information concerning the new binding is sent to at least one network node connected to the first access device and to the second access device to an ARP table (Address Resolution Protocol) thereof using an ARP protocol.

32. A method as claimed in claim 26, wherein the first access device and the second access device are access points of a wireless local network connected to one another through a wired local network.

## IX. EVIDENCE APPENDIX

None.

## X. RELATED PROCEEDINGS APPENDIX

None.